



# Investigating mediated effects of fear of COVID-19 and COVID-19 misunderstanding in the association between problematic social media use, psychological distress, and insomnia

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## ABSTRACT

**Introduction:** Due to the serious situation of the novel coronavirus disease 2019 (COVID-19) worldwide, many countries have implemented policies to minimize the spread of COVID-19 infection. However, some of these policies prevent people from physical contact. Consequently, many individuals may rely on social media to obtain information concerning COVID-19. Unfortunately, social media use (especially problematic social media use) may give rise to psychological distress. Therefore, this study thus examined potential psychopathology to explain the association between problematic social media use, psychological distress, and insomnia.

**Methods:** Utilizing an online survey, a sample of Iranian young adults ( $n = 1078$  with 628 males; mean age = 26.24 years [ $SD \pm 7.41$ ]) completed questions and psychometric scales concerning psychological distress, insomnia, problematic social media use, fear of COVID-19, and COVID-19 misunderstanding.

**Results:** Problematic social media use was significantly associated with psychological distress both directly and indirectly. The indirect effects were through fear of COVID-19 (unstandardized coefficient [ $B$ ] = 0.177; Bootstrapping SE = 0.026) and COVID-19 misunderstanding ( $B = 0.060$ ; Bootstrapping SE = 0.014). Problematic social media use was significantly associated with insomnia both directly and indirectly. The indirect effect was through fear of COVID-19 ( $B = 0.062$ ; Bootstrapping SE = 0.019) but not COVID-19 misunderstanding ( $B = 0.012$ ; Bootstrapping SE = 0.014).

**Discussion/conclusion:** Due to the pressure of the COVID-19 outbreak, individuals are highly likely to develop psychological distress and insomnia. Apart from developing appropriate health policies to minimize the spread of COVID-19 infection, healthcare providers should design appropriate online campaigns to eliminate people's fear of COVID-19 and to diminish misunderstanding concerning COVID-19.

## 1. Introduction

The rapid growth of novel coronavirus disease 2019 (COVID-19) infection spread fast among 213 countries/territories worldwide with over 7.7 million confirmed cases and over 418,000 deaths at the time of writing (June 13, 2020; [Worldometer, 2020](https://www.worldometers.info/coronavirus/)), and the World Health Organization (WHO) announcing this as a pandemic ([World Health Organization, 2020](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/)). The threat of COVID-19 has been documented by its high transmission rate ([World Health Organization, 2020](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/)) and relatively high mortality rate at about 2% ([Baud et al., 2020](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/)). Although

there are some typical COVID-19 symptoms (e.g., fever, fatigue, dry cough, myalgia, and dyspnea), some people infected by COVID-19 may have symptoms similar to influenza ([Wang et al., 2020a, 2020b](https://doi.org/10.1016/j.invent.2020.100345); [Wong et al., 2020](https://doi.org/10.1016/j.invent.2020.100345)). Therefore, this may result in some cases of COVID-19 infection being missed and a loophole of COVID-19 infection control. Because of the direct threat to life with a substantial number of confirmed cases, the anxiety of being infected and subsequent sleep problems (e.g., insomnia) have been reported among general population ([Wang et al., 2020a, 2020b](https://doi.org/10.1016/j.invent.2020.100345); [Xiao et al., 2020](https://doi.org/10.1016/j.invent.2020.100345)). Using a psychometrically validated instrument on fear of COVID-19, a recent largescale study

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